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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHOW, LIXI

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

10/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,999	Applicant(s) MAEDA ET AL.	
	Examiner LIXI CHOW	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 and 11-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of species I in the reply filed on 05/05/09 is acknowledged.

Claims 6-9 and 11-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 05/05/09.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Wada (US 5,319,198).

Regarding claim 1:

Wada discloses an information recording/reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information recording medium (see Fig. 5 or 6), the information recording/reading head comprising:

Art Unit: 2627

a support portion (see Fig. 6B, element 3) ; and

four or more recording/reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium (see Fig. 6B, there are four or more read heads (represented by reference number 1 and 2) provided on the support portion 3),

at least four of the recording/reading elements being arranged on the support portion such that if the positions of recording/reading end portions of the recording/reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D (see Fig. 6B; the four read heads located on the lower left corner forms a parallelogram), and that if a ratio of the length of the line segment AB to the length of the line segment AC is η (the ratio is 1 according the arrangement shown in Fig. 6B) and the height of the parallelogram is H when the line segment AC is regarded as a base, the following relationship is satisfied: $H = \eta * P$ (since the ratio is 1, $H = 1 * P$, which is shown in Fig. 6B).

Regarding claim 2:

Wada discloses an information recording/reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading reformation recorded on the tracks of the information recording medium (see Fig. 5 or 6), the information recording/reading head comprising:

a support portion (see Fig. 6B, element 3); and

four or more recording/reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium (see Fig. 6B, there are four or more read heads (represented by reference number 1 and 2) provided on the support portion 3),,

at least four of the recording/reading elements being arranged on the support portion such that if the positions of recording/reading end portions of the recording/reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D (see Fig. 6B; the four read heads located on the lower left corner forms a parallelogram), and that if the length of the line segment AC is L and an angle ACD made by the line segment AC and the line segment CD is α , the following relationship is satisfied: $L \cdot \sin \alpha = P$ ($\sin \alpha = P/L$; let $m=1$, and since Fig. 6B shows that P and L are equal and α is 90 degree, the equation is satisfied)..

Regarding claim 3:

Wada discloses an information recording/reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information recording medium (see Fig. 5 or 6), the information recording/reading head comprising:

a support portion (see Fig. 6B, element 3) ; and

four or more recording/reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read

Art Unit: 2627

information recorded on the tracks of the information recording medium (see Fig. 6B, there are four or more read heads (represented by reference number 1 and 2) provided on the support portion 3),

at least four of the recording/reading elements being arranged on the support portion such that if the positions of recording/reading end portions of the recording/reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D (see Fig. 6B; the four read heads located on the lower left corner forms a parallelogram), and that if a ratio of the length of the line segment AB to the length of the line segment AC is η (the ratio is 1 according the arrangement shown in Fig. 6B) and the height of the parallelogram is H when the line segment AC is regarded as a base, the following relationship is satisfied: $H = m \cdot \eta \cdot P$ (wherein m is a natural number) (since the ratio is 1, and let $m=1$, $H=1 \cdot 1 \cdot P$, which is shown in Fig. 6B).

Regarding claim 4:

Wada discloses an information recording/reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading reformation recorded on the tracks of the information recording medium (see Fig. 5 or 6), the information recording/reading head comprising:

a support portion (see Fig. 6B, element 3); and

four or more recording/reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium (see Fig. 6B, there are

Art Unit: 2627

four or more read heads (represented by reference number 1 and 2) provided on the support portion 3),,

at least four of the recording/reading elements being arranged on the support portion such that if the positions of recording/reading end portions of the recording/reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D (see Fig. 6B; the four read heads located on the lower left corner forms a parallelogram), and that if the length of the line segment AC is L and an angle ACD made by the line segment AC and the line segment CD is α , the following relationship is satisfied: $L \cdot \sin \alpha = m \cdot P$ (wherein m is a natural number) ($\sin \alpha = (m \cdot P)/L$; let $m=1$, and since Fig. 6B shows that P and L are equal and α is 90 degree, the equation is satisfied).

Regarding claim 5:

Wada discloses the information recording / reading head according to claim 1. wherein the at least four recording / reading elements are arranged on the support portion such that if the length of the line segment AC is L and the line segment CD is K, the following relationship is satisfied, $(n^2 \cdot K^2 / L^2) + (H^2 / K^2) \neq 1$ (n is a natural number) (the arrangement shown in Fig. 6B satisfies the above equation since it shows that $K=L$ and $H=K$; let $n=1$, the result is 2, which is not 1).

Regarding claim 10:

Wada discloses the information recording/reading head according to claim 1, wherein the recording/reading elements are probes (see Fig. 5B; the head devices shown by elements 1 and 2 are probes that measure/examine the information recorded on the disk).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim et al. (US 2002/0080710) is cited because Kim et al. disclose a recording/reproducing head having a plurality of probes attach to one supporting portion.

Korogi et al. (US 6,101,165) is cited to show a related art reference that teaches a trackingless high-speed optical readout method by planar aperture probe array having at least four probes that are arranged in a parallelogram.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIXI CHOW whose telephone number is (571)272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lixi Chow/
Examiner, Art Unit 2627